Overview

The 210-2002 is a Vaporstat™ wall-mounted dewpoint sensor. The sensor is designed for measuring indoor or outside dewpoint or absolute humidity level.

Sensor Wiring

1. For wiring the dewpoint sensor to a CPC input board, use Belden #8761 shielded two-conductor cable or equivalent.

2. Connect the BLACK and WHITE wires to the screw terminals on the sensor's connector as shown in *Figure 1* (connect BLACK to Signal Ground and WHITE to 0-5V Output). Clip the SHIELD wire.

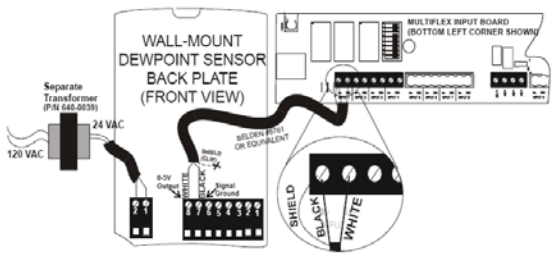


Figure 1 - Sensor and Input Board Wiring

3. Connect the SHIELD and BLACK wires to the 0V terminal of the input board. Connect the WHITE wire to the SIG terminal of the input board.

4. Connect 24VAC (a separate 120VAC/24VAC transformer must be used P/N 640-0039) to the power terminal on the dewpoint sensor back plate using the BLACK and WHITE wires. (This 24VAC transformer must only be used to power this dewpoint sensor. Do not use this transformer to power additional devices.)

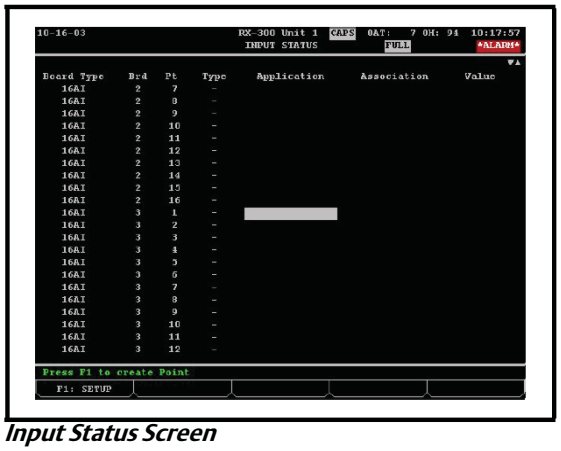
5. Locate the input dip switch for the sensor point, and set to the OFF position (LEFT for MultiFlex, DOWN for 16AI). Refer to the input board's user manual for locations of the input dip switches.

Controller Setup

NOTE: *DO NOT set this sensor up with a sensor type of "Dewpoint"; that setting is only for CPC Dewpoint Probes (P/N 203-1902). This dewpoint sensor MUST be set up as a linear sensor type.*

E2/Einstein

1. After logging into the controller, press Alt + I to open the Input Status screen or press the Menu key, & 7 (System Configuration), ! 1 (Input Summary). (If using an Einstein, press **F8**(ACTIONS) from the Home screen. Press **Y** (System Setup). Press **6** (Input and Output Point Setup). Press **1** (Input Summary) to open the Input Summary screen.)

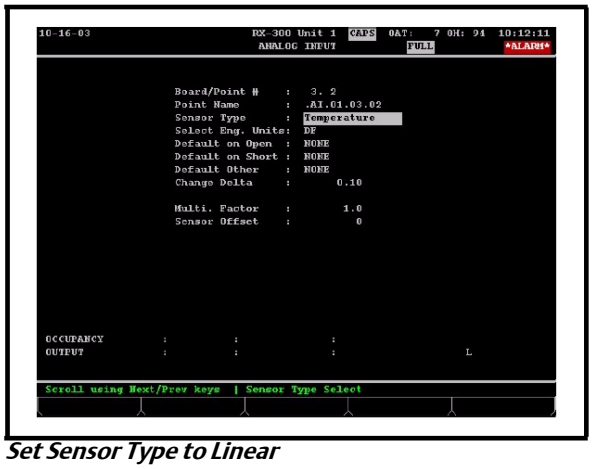


Input Status Screen

2. Highlight the input-point the sensor is attached to and press F1 (SETUP) to set up the input, or press Enter to open the Actions Menu and select **5** (Setup). (If using an Einstein, select an input point and press **F7** (SETUP IN) to open the Analog Input screen.)

E2 Actions Menu for Selected Input

3. Select Analog to set up the input as analog. The Analog Input screen will display:

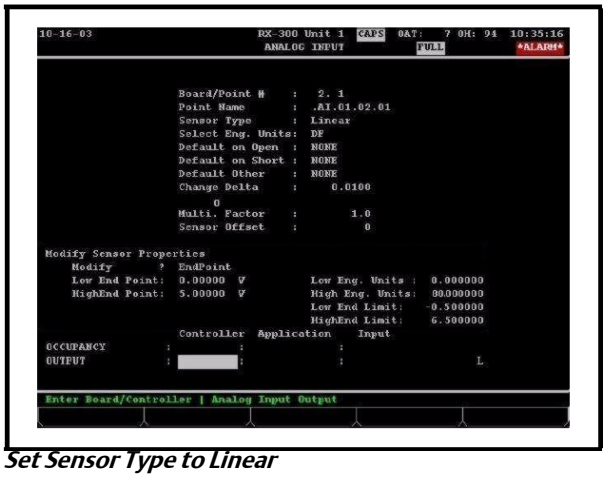


Set Sensor Type to Linear

4. Once on the Analog Input screen, move the cursor to the **Sensor Type** field, press F4 (LOOK UP), and set to **Linear**. (If using an Einstein, press **F7** (LOOK UP) and set to **Linear**.)

Option List Selection Menu For Sensor Type

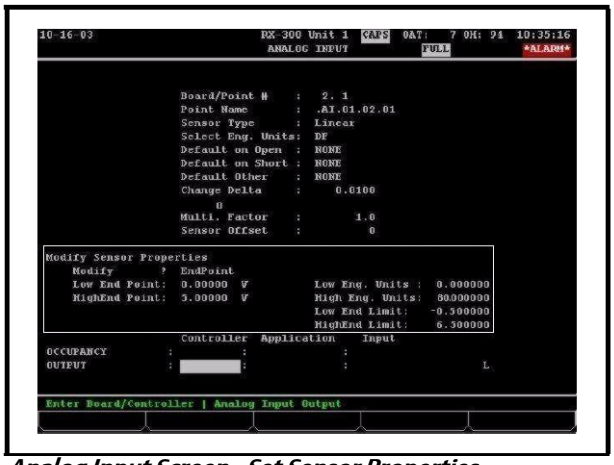
5. Move cursor to **Select Eng. Units** and press F4 (LOOK UP). Set this field to **DF** (for Degrees Fahrenheit). (If using an Einstein, press **F7** (LOOK UP) and set to **DF**.)



Set Sensor Type to Linear

6. Then set the following sensor properties:
   - Set the **Modify** field to: **EndPoint**. (If using an Einstein, press **F7** (LOOK UP) and set to **EndPoint**.)

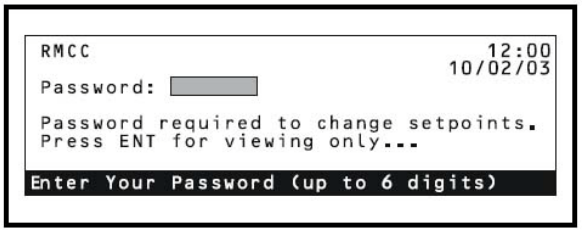
- Set the **Low End Point** field to **0**.
- Set the **HighEnd Point** field to **5.0**.
- Set the **Low Eng. Units** field to **0**.
- Set the **High Eng. Units** field to **80**.
- Set the **Low End Limit** field to **-0.5**.
- Set the **HighEnd Limit** field to **6.5**.



Analog Input Screen - Set Sensor Properties

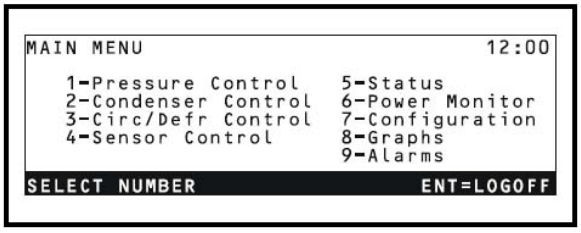
REFLECS

1. Log in to the controller.



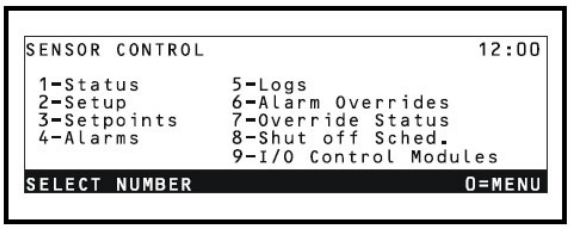
REFLECS Login Screen

2. From the Main Menu, select **4** -Sensor Control.



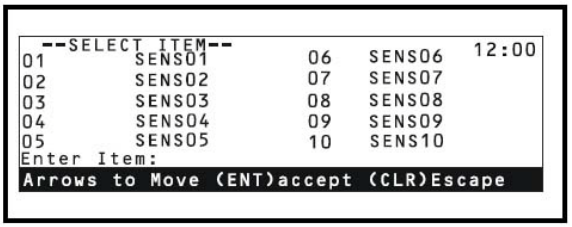
REFLECS Main Menu Screen

3. From the Sensor Control screen, select **2** - Setup.



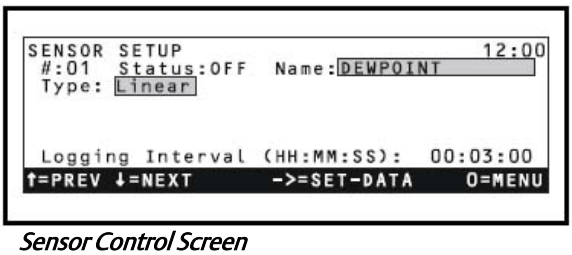
Sensor Control Screen

4. From the Select Sensor screen, choose the sensor you wish to set up:



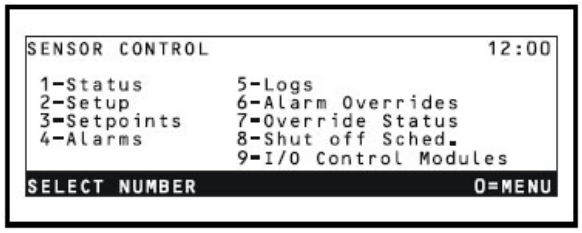
Select Item Screen

5. Once you select a sensor, the Sensor Setup screen opens. Enter a name for the sensor in the **Name** field (for example, DEWPOINT) and set the **Type** field to **Linear** by using the scroll keys or pressing the red button + the 8 (L) button.



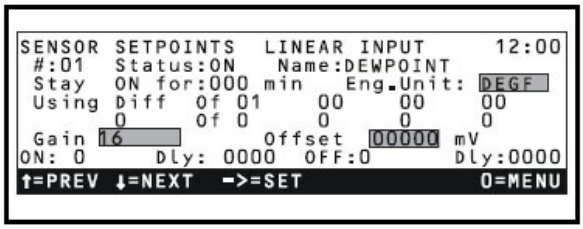
Sensor Control Screen

6. Press **0** to go back to the Sensor Control screen. Select **3** -Setpoints and then choose the sensor to set Gain and Offset.



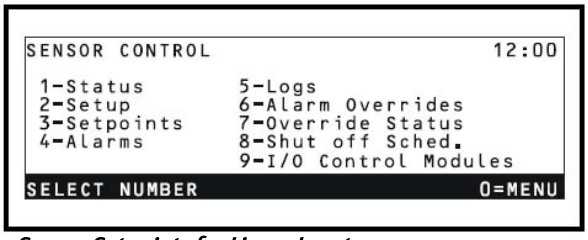
Sensor Control Screen

7. Set **Gain** to **16**, **Offset** to **0** (the default) and enter degrees fahrenheit units into the **Eng. Unit** field (for example, type DEGF).

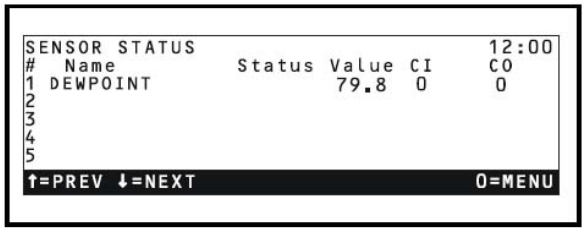


Sensor Setpoints for Linear Input

8. To check the sensor input value, press **0** to go back to the Sensor Control screen and select **1** -Status.



Sensor Setpoints for Linear Input



Sensor Status Screen – Sensor Value

Set Up Zero Calibration

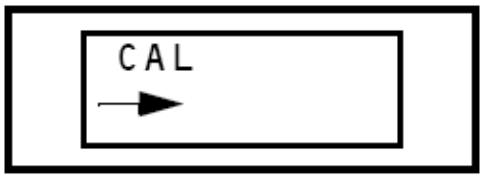
The Zero Calibration mode allows the user to calibrate the sensor to a verified zero concentration of water vapor. For best results, allow the sensor to warm up for at least 10 minutes.

For zero calibration, all tubing should be connected between the gas bottle and the sensor inlet flow port. Before initiating calibration using the sensor keypad, the gas should be flowed to the sensor at a rate of 80-100 cc\minute for a period of five minutes.

Observe the following steps to set up Zero Calibration mode.

1. Attach the short hose to the bottom port on the flowmeter.
2. Attach the long hose to the top port on the flowmeter.
3. To ensure the meter is kept in the vertical position, secure the flowmeter to the side of the gas bottle using the supplied tie wrap.
4. Remove the protective cap from the nitrogen bottle and attach the gas regulator.
5. Attach the open end of the bottom hose (located on the flowmeter) to the gas regulator. Slide the hose far enough on the gas port to ensure a secure, airtight connection.
6. Insert the male luer fitting (located on the longer hose) into the calibration port, located on the bottom of the dewpoint sensor.
7. Verify that all components are installed correctly and initiate the calibration process by turning the knob on the regulator. Turn the knob until the indicator reaches 7 psi.
8. Turn the flowmeter knob until the floater reaches 80-100 cc/minute.
9. Allow the gas to flow for at least 5 minutes before proceeding.

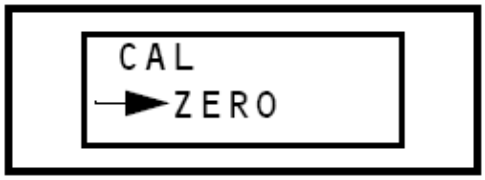
10. Press the **Clear** and **Enter** buttons together and hold for five seconds. The word CAL will appear in the topline of the LCD display:



11. Use the arrow buttons to toggle to the Zero Calibration mode.

NOTE: *Prior to pressing the **Enter** button, the zero gas should be flowing to the dewpoint sensor for atleast five minutes.*

12. When **ZERO** is displayed, press the **Enter** button to initiate the calibration process.



13. Once the **Enter** button is pressed, the calibration process will take five to seven minutes during which time the green LED below the display will flash. Once calibration is completed, the sensor will revert to its normal display mode.

Calibration Layout

Refer to the calibration topic of the manufacturer's manual for the sensor's zero calibration layout. Contact your CPC sales representative for calibration kit (P/N 210-2005) purchasing information.